

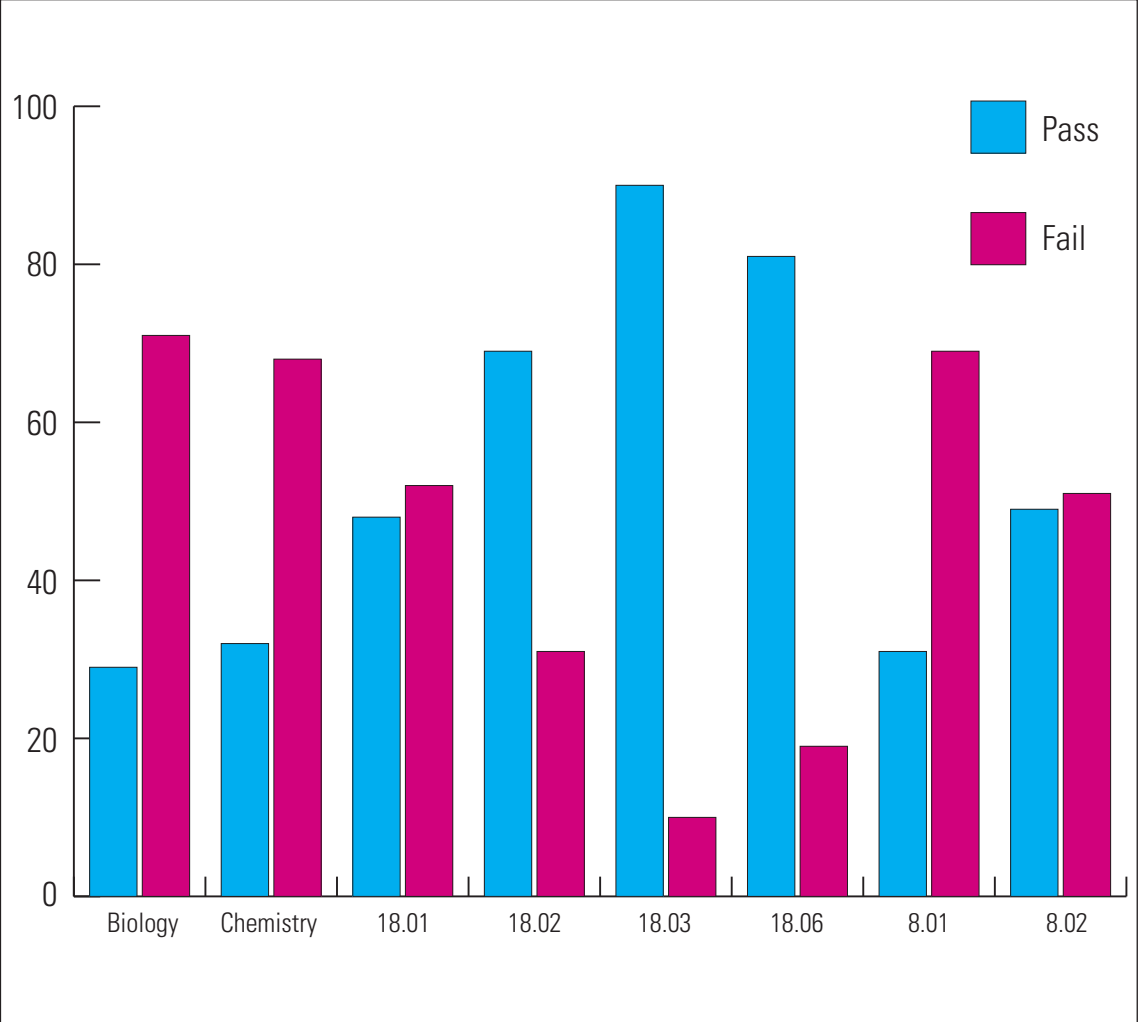
# 509 take ASEs, up from 443 last year, about half passed

*Upperclassmen told frosh ‘nothing bad is going to happen if you fail’*

By Melody Tan

More than 500 students, mostly incoming freshmen, spent time during orientation to undertake the Advanced Standing Exams. With an overall pass rate of 50.4 percent, the class of 2020 and assorted upperclassmen performed lower than last year’s overall pass rate of 59 percent. The number of people taking exams has increased — 509, as compared to 443 and 398 for 2015 and 2014 respectively. Combined, those 509 sat for a total of 955 exams this fall, averaging about 1.88 exams each. Pass rates across the board are slightly lower than last year’s, with the exception of the 18.03 Differential Equations exam’s 90 percent pass rate. The 7.01x Introductory Biology exam’s pass rate in particular saw a

drop, from 41 percent over the past five years to a 29.1 percent in 2016. This difference may result from the large number of students who took the exam: 151 this year, compared to the 67 in 2014 who scored a pass rate of over 47 percent. In fact, the total number of passing students has actually increased from 32 in 2014 to 44 in 2016. Meanwhile, 5.111 Principles of Chemical Science pass rates have remained high with 31.8 percent of students receiving a passing mark. 5.111 scores have soared for the past two years. In 2014, only 17.9 percent of students passed. In years before that, the average was closer to 14 percent. For incoming freshmen, the ASEs are an opportunity to demonstrate proficiency in the GIRs and



INFOGRAPHIC BY VIVIAN HU

ASEs, Page 3 Freshmen on pass/no record have nothing to lose by taking an ASE; 481 of 955 attempts were successful.

## Renovated Building 9 reopens under new name

On September 12, Building 9 reopened under a new name, the Samuel Tak Lee Real Estate Entrepreneurship Lab, after a major but rapid renovation. In addition to various physical improvements, the STL Lab now groups together all of MIT’s real estate and urban studies programs under the same roof. The renovations were made possible after Samuel Tak Lee ’62 made a \$118 million gift in January 2015. This historically large gift was intended to promote real

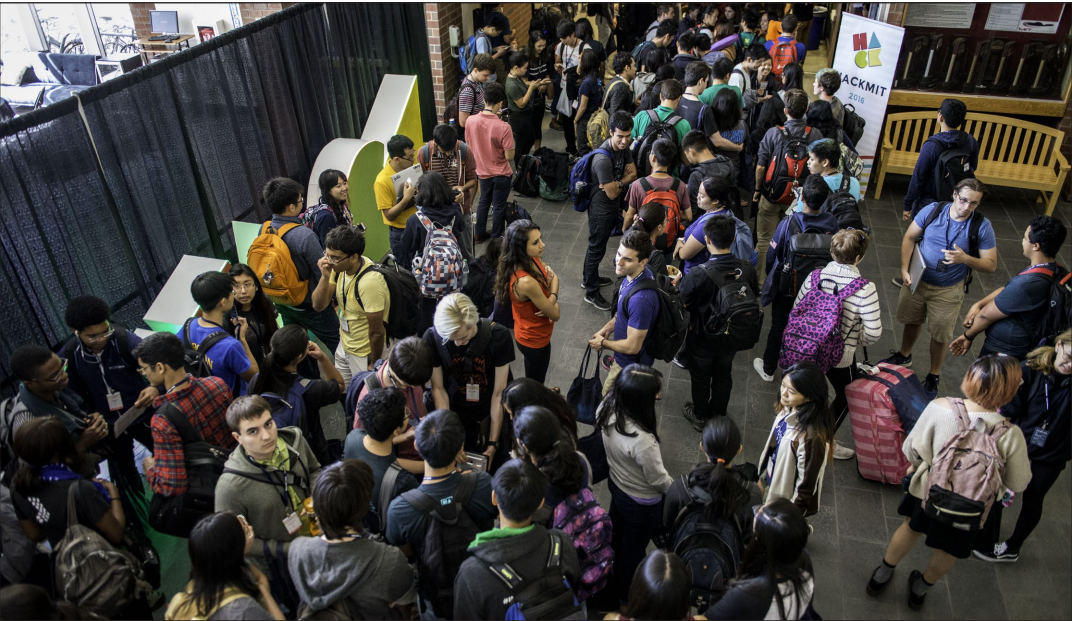
estate entrepreneurship at MIT. The most visible changes were increased natural lighting in classrooms, large vistas onto Mass Ave, and the appearance of study spaces on the upper floors. The centerpiece of this effort is the second floor’s “city arena”: an interactive work-study space equipped with new presentation and communication technologies. The renovations took only three months to complete, a schedule described as “beyond

aggressive” by Jim Harrington, director of facilities for the School of Architecture and Planning. To stay on schedule, construction continued on weekends and workers took double shifts. A new HVAC system was installed on the roof of the building. The previous one was installed in the basement and used to suck in diesel fumes from nearby loading docks. The change of location required the ducts to be rerouted from a bottom-up to a top-down network.

To improve the building’s energy efficiency, all 600 windows were replaced. This operation was done at night to minimize noise disruptions to nearby labs. The STL Center was also upgraded to meet current accessibility norms. This involved installing a new elevator to give access to the 6th floor - a penthouse with a 360-degree view, updating ramps to allow for wheelchair access, and adding additional accessible bathrooms. —Olivia Brode-Roger

## IN SHORT

**A blood drive** will take place in La Sala. It will be open from 8 a.m. to 1 p.m. today, and 1 p.m. to 6 p.m. Wednesday and Thursday. **Career Fair** will be taking place Friday and is a student holiday. Visit <http://career-fair.mit.edu/> for more info. **Add date** is Friday, Oct. 7. That is the last day to add a class or change its grading option. **Send news and tips to** [news@tech.mit.edu](mailto:news@tech.mit.edu).



JOSEFF KOLMAN —TECHNIQUE

Students from MIT and other universities gather outside the Johnson Ice Rink before being let in for the 24-hour hackathon that took place this past weekend.

# Alleged NYC bomber, wounded in gunfight, apprehended Monday

*Authorities sent alert to millions of citizens, enlisting them in manhunt*

By Marc Santora, William K. Rashbaum, Al Baker and Adam Goldman  
THE NEW YORK TIMES

The man believed to be responsible for the explosion in Manhattan Saturday night and an earlier bombing in New Jersey, Ahmad Khan Rahami, was taken into custody Monday after he was wounded in a gunfight with police, law enforcement officials said. The dramatic episode on a rain-

soaked street in Linden, New Jersey, came after police issued a cellphone alert to millions of residents in the area telling them to be on the lookout for Rahami, 28, who was described as “armed and dangerous.” The showdown started around 10:30 a.m. when a resident spotted a man sleeping in the doorway of a bar, officials said. Capt. James Sarnicki of the Linden Police Department told report-

Bombing, Page 3

**SHOKO AND KAZUO**  
Making new friends in new places. **CAMPUS LIFE**, p. 8

**YOU'RE REALLY CUTE, HI**  
Meeting random people in random places. **CAMPUS LIFE**, p. 8  
**LIGHT MATRIX**  
A waterfall, a starry sky, or a metaphor? **ARTS**, p. 7



**FEELING ANONYMOUS?**  
A Beacon Street icon takes the stage. **ARTS**, p. 7

**A BIG HITTER**  
Don't bet against Filiere. **SPORTS**, p. 10

**SECTIONS**  
Fun Pages . . . . .4  
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WEATHER

# A clear and calm week

**By Costa Christopoulos**  
STAFF METEOROLOGIST

A stalled frontal boundary along the east coast served as a trigger for sustained rainfall yesterday and this morning across the New England area.

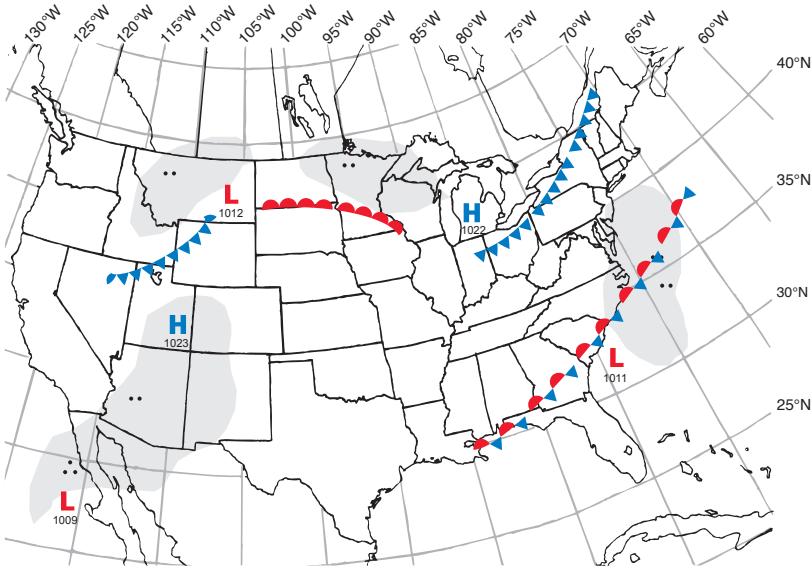
Any rainfall is welcome as moderate to extreme drought conditions have developed in Massachusetts after a summer of unseasonably warm temperatures coupled with limited rainfall. Some locations in eastern Massachusetts are nearly one

foot below average for the year in terms of rainfall, putting the region at greater risk for crop losses and water shortages. Although it is unlikely that any single rain event will end advisory-level drought, a series of weak rain events like yesterday's can reduce the year-long rainfall deficit.

As high pressure builds this evening, Boston will enter a brief period of drier and warmer conditions. Daytime highs through Friday will be in the low 80s °F as mostly sunny conditions develop and a weak ridge takes hold.

Extended Forecast

**Today:** Partly cloudy. High of 83°F (28°C) . Winds southwest at around 5-8 mph.  
**Tonight:** Partly cloudy. Low of 68°F (20°C). Winds southwest at 7-10 mph.  
**Tomorrow:** Mostly sunny. High of 82°F (28°C). Winds west at 5-10 mph.  
**Thursday:** Mostly sunny. High of 82°F (28°C).  
**Friday:** Mostly sunny. High of 80°F (27°C).



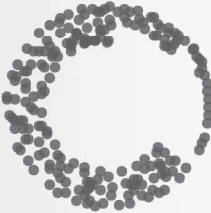
Weather Systems	Weather Fronts	Precipitation Symbols	Other Symbols
<b>H</b> High Pressure	--- Trough	Snow * Rain ▾	☁ Fog
<b>L</b> Low Pressure	— Warm Front	Light * Moderate ** Heavy ***	⚡ Thunderstorm
§ Hurricane	▲ Cold Front		∞ Haze
	◀ Stationary Front		

Situation for Noon Eastern Time, Tuesday, September 20, 2016

# KENSHO

transform() the world to fit() the future

```
X = SparseAutoEncoder(num_hidden=10).fit_transform(features)
xycoords = TSNE(random_state=17).fit_transform(X)
DBS = cluster.DBSCAN().fit(X)
plt.scatter(xycoords[:, 0], xycoords[:, 1], color=colors[DBS.labels_])
```



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# Frosh took ASE failures in stride

## ASEs helped freshman ‘keep mind on school’ before semester

ASEs, from Page 1

move on to classes of more appropriate difficulty. The Tech spoke with several freshmen who had taken the exams.

During freshman fall, ASE results are scored using pass/no record. Mariam Dogar '20 said that older students encouraged her to take advantage of that fact.

“All the advice I got from upper-classmen was that... nothing bad is going to happen if you fail,” Dogar said.

Jacob Miske '20 sat for both the Chemistry and Biology ASEs. Miske was not disappointed with his decision to take the exams.

“Both were very difficult; however, I felt like they were... a good way to keep my mind on school during the fun of orientation,” he said.

He nevertheless lamented that studying for the exams took away from the time he had to attend other orientation activities. About his result, Miske said he’s “better off taking [the classes] and being solid with the material.”

Other freshmen shared this perspective: “I’m making sure my foundation is concrete,” Jeba Sania '20 said.

Solution to Saturday Stumper  
from page 4

S	K	I	R	A	C	E	G	R	E	N	D	E	L
E	A	S	E	S	O	N	Y	E	A	R	O	N	E
A	M	B	L	I	N	G	M	I	R	A	N	D	A
M	A	N	I	A	C	A	R	F	S	N	O	R	
			S	N	O	W	D	A	Y	S	Y	F	
J	O	S	H	R	O	U	T	A	P	B	S		
A	B	C	I	D	O	L	A	L	E	R	T	S	
Y	O	U	S	E	D	T	O	B	E	C	O	O	L
Z	E	B	R	A	S	H	I	D	E	O	R	O	
D	A	L	Y	H	I	L	O	S	K	Y	E		
D	A	D	S	C	I	T	Y	M	A	P			
E	M	I	G	E	L	S	I	R	O	B	O	T	
L	O	V	E	A	L	L	E	N	T	R	O	P	Y
T	R	E	M	B	L	E	L	A	S	T	L	A	P
A	E	R	O	S	O	L	F	L	Y	S	O	L	O

Solution to 7.012  
from page 5

4	7	6	2	5	9	1	3	8
8	1	3	6	4	7	5	2	9
2	9	5	8	1	3	6	7	4
9	4	8	7	2	5	3	6	1
6	2	1	3	9	4	8	5	7
5	3	7	1	8	6	4	9	2
1	5	2	9	6	8	7	4	3
7	8	4	5	3	2	9	1	6
3	6	9	4	7	1	2	8	5

Solution to 18.02  
from page 5

9	7	3	2	8	4	5	6	1
2	5	8	3	6	1	9	4	7
6	1	4	5	7	9	2	8	3
8	2	9	6	4	7	1	3	5
1	6	7	8	5	3	4	9	2
4	3	5	1	9	2	8	7	6
3	4	6	9	1	5	7	2	8
7	8	1	4	2	6	3	5	9
5	9	2	7	3	8	6	1	4

CORRECTIONS

An article in last week’s issue incorrectly stated that “S3 Staff Associate Joe Zimakas will be living in Senior House.” In fact, he will hold office hours there, but will not live there.  
An article on the front page of last week’s issue, attributed to Melody Tan, should have been attributed to both Melody Tan and Santiago Ospina.

# Officer struck, saved by vest, in gunfight

## Authorities say man is responsible for two bombs in NYC, one in NJ

Bombing, from Page 1

ers that an officer approached the man, later identified as Rahami, and when he woke him, he saw that he had a beard resembling that of the man on the wanted poster.

The officer ordered Rahami to show his hands, Sarnicki said, but instead, he pulled out a handgun.

He shot the officer in the abdomen, Sarnicki said, but the bullet struck his vest.

“The officer returned fire,” he said. Rahami fled, “indiscriminately firing his weapon at passing vehicles.”

Other officers joined the chase, and Rahami was shot multiple times. At least one other officer was injured during the confrontation.

Shortly after 11 a.m., Rahami was in custody, seen by witnesses splayed out beside the street, hands cuffed behind his back and his shirt rolled up, officers standing over him with their weapons drawn.

Rahami, blood pouring from a wound in his shoulder and splattered on his face, was loaded onto

a stretcher and taken to University Hospital in Newark, New Jersey.

Rahami was identified by officials on surveillance video planting the bombs in Chelsea, both the device that exploded on 23rd Street and another that did not detonate a few blocks away. His fingerprint was also found on one of the pressure cooker bombs in Manhattan, according to a senior law enforcement official. Rahami was also connected to a bombing that took place earlier Saturday on the Jersey Shore.

The police believe that he was also responsible for a backpack full of pipe bombs found in Elizabeth, New Jersey, late Sunday.

President Barack Obama, who arrived in New York Monday to join other world leaders for the annual meeting of the United Nations General Assembly, made brief remarks on the attack.

“Folks around here, they don’t get scared,” Obama said. “They are tough, they are resilient, they go about their business every single day.”

He also warned of the dangers of exaggerating threats or spread-

ing rumors.

Authorities began to focus on Rahami on Sunday as they reviewed hours of surveillance video taken from the Chelsea area.

On Sunday evening, increasingly confident that Rahami might be involved in the bombing, police rushed to act when they saw a car leaving an address associated with him.

The car was pulled over on the Belt Parkway near the Verrazano-Narrows Bridge in Brooklyn. Five people inside were questioned and later released.

Later on Sunday night, police got a report of a suspicious package near a train station in Elizabeth, New Jersey. The FBI, called in to investigate, dispatched a pair of robots to examine the bag and determined that it held five bombs, some of which were pipe bombs.

Around 12:30 a.m., the robots tried to clip a wire to disarm one bomb and accidentally detonated it. No one was injured.

The location of the bag was not far from where the Rahami family ran a restaurant, and before dawn federal agents and local police of-

ficers were swarming a residential neighborhood of low-rise apartment buildings, multiple-family homes and small businesses.

They searched the restaurant, First American Fried Chicken, and addresses where Rahami was reported to have spent time.

Even as police scoured the area near the Rahami restaurant, the suspect was seeking shelter from the morning rain under a doorway of a bar in the neighboring town of Linden.

Diego Jeronimo, 36, the owner of a store near where the gunbattle unfolded, said he opened his front door and saw a police car parked lengthwise across the street, an officer with his back to him with his gun drawn using the car as a shield. He heard around five shots.

“Then it calmed down a little bit, then we hear seven shots, but they were more distant,” down the block, he said.

Shawn Styles, 30, who works at Linden Auto Body next door, said he saw numerous police vehicles whiz down the avenue.

“Then multiple, multiple shots,” he said.

Solution to 8.01  
from page 4

7	4	6	8	2	1	9	3	5
3	9	2	4	7	6	5	8	1
9	6	8	1	4	3	2	5	7
8	5	7	9	3	2	1	4	6
6	3	5	7	1	9	8	2	4
2	8	1	3	6	5	4	7	9
1	7	9	2	5	4	3	6	8
5	2	4	6	9	8	7	1	3
4	1	3	5	8	7	6	9	2

Solution to Slow Down  
from page 5

M	E	R	E	F	L	A	G	P	L	O	W	S
O	P	E	N	L	I	N	E	B	O	G	I	E
B	E	P	A	T	I	E	N	T	S	A	L	S
Y	E	S	M	O	M	A	S	K	F	E	E	T
			E	A	S	T	O	D	E			
			H	O	L	D	Y	O	U	R	H	O
J	O	N	E	S	P	S	A	L	M	M	A	O
O	W	E	D	W	H	E	T	S	H	E	R	B
A	D	O	M	E	A	T	S	P	I	L	L	S
D	O	N	T	B	E	T	O	O	H	A	S	T
			Y	A	P		N	A	Y	S		
S	P	A	R	S	I	B	S	T	Y	M	I	E
L	I	L	A	C	N	O	T	S	O	F	A	S
I	N	A	N	E	F	O	I	L	I	C	E	S
P	E	S	T	O	O	N	C	E	T	H	E	Y

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Chinese food provided! Contact: seang@mit.edu

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8.01

Solution, page 3

21×	384×				26+			4−
	29+			42×				
9			13+				140×	
40×		26+			25+			2−
22+				6×			2	
2		36×				84×	30+	
7×			10×		32×			
3−			270×				3×	
12×				336×			7−	

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–9. Follow the mathematical operations for each box.

Saturday Stumper by Matthew Sewell

Solution, page 3

ACROSS

- 1 Biathlon, in part  
8 Cain descendant, per ancient literature  
15 Takes it slow  
16 Start of a stretch  
17 Taking it slow  
18 Only female role in a certain Bard romance  
19 Wild one  
20 Sounds that a toy makes  
21 “Thinks what ne’er was, \_\_\_ is”: Pope  
22 Unexpected break caused by a fall  
24 Airer of the Sharktopus franchise  
25 Kidder’s comment  
28 Skunk  
29 “Side missions” in the video game L.A. Noire  
30 Early investor in Disneyland  
31 Archaeological treasure  
32 Google deliveries  
34 Disapproval for a change  
37 Exotic diagnoses, in medical slang

- 38 Palm, perhaps  
39 ABBA compilation with “Gracias Por La Música”  
40 Golf pro with a Loudmouth clothing line  
41 Town on Mauna Loa  
42 Island seat of Clan MacLeod  
43 First beverage brand sold in six-packs  
44 Chicagotraveler.com offering  
46 Capitol Records buyer in 1955  
47 Bottles used by locksmiths?  
48 1950 classic its author wanted to call Mind and Iron  
52 How sets begin  
54 Explanation for disorder  
55 Betray awe  
56 What anchors cover  
57 Silly String, essentially  
58 Get no help

DOWN

- 1 Knitter beginner’s challenge

- 2 Hindu Cupid  
3 Penguin designation  
4 Liking  
5 Like kiwifruit  
6 They ran on Rolls-Royce engines  
7 Romney’s major at BYU  
8 Long-term trainee  
9 Make tangible  
10 All \_\_\_  
11 ‘30s “fair competition” agcy.  
12 Major scrape  
13 “That’s all, folks”  
14 Stone’s father in . . . Spider-Man  
20 Radio format for those 25 to 55  
23 Locust, for instance  
24 Imprecision, for short  
25 Queen Bey’s consort  
26 “Apt” instrument in Bach’s St. Matthew Passion  
27 Key inspector  
29 Adverb from Old English for “shelter”  
31 Dr. Watson outburst  
32 Six-pack descriptor

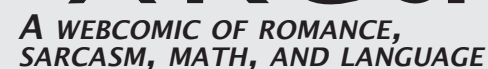
1	2	3	4	5	6	7		8	9	10	11	12	13	14
15								16						
17								18						
19							20					21		
			22			23					24			
25	26	27			28					29				
30				31					32				33	
34			35					36						
37							38					39		
	40					41					42			
43					44					45				
46				47					48			49	50	51
52			53					54						
55								56						
57								58						

- 33 Cherry cousin  
35 Google deliveries  
36 Excessively charming  
41 Judean sage  
42 Exhibits  
43 SkyTeam member  
44 Resealable bag material, for short

- 45 Excessively charming  
47 Up for \_\_\_ (gossipy?)  
49 Accessory with metal aglets  
50 14th anniversary stone  
51 Dome for some, perhaps  
53 Broody or pensive  
54 Christmas cookie shape







by Randall Munroe

WOW, GOD—  
WHAT'S THAT  
BAND OF COLOR?

A RAINBOW!  
IT IS A SIGN OF MY  
PROMISE THAT I  
WILL NEVER AGAIN  
FLOOD THE EARTH.

OH, GOOD! HEY, WHAT  
ABOUT THAT SECOND BOW  
ABOVE THE FIRST ONE?

OH, UH, SIGN OF MY  
PROMISE NOT TO SET  
THE EARTH ON FIRE.

SORRY FOR DOING  
THAT A WHILE BACK.

WHAT ABOUT THAT THIRD  
FAINT BOW NEAR THE SUN?

MY PROMISE TO NEVER  
AGAIN DESTROY EARTH'S  
ECOSYSTEM BY MAKING  
RACCOONS IMMORTAL.

AND THE LITTLE  
RAINBOW CLOUDS  
ON EITHER SIDE OF—

LOOK, I SAID I'M  
SORRY. CAN WE  
JUST DROP IT?

sten, in a few thousand years you'll invent a game called 'SimCity' which has a 'disaster' button, and then you'll understand.

# THE SUN'S SPECTRAL LINES

CALCIUM

IRON

SODIUM

OXYGEN

HYDROGEN

MAGNESIUM

THOSE GIANT SUNGLASSES

It still don't understand why the Sun paid the extra money for transitions lenses.



ART REVIEW

# Shedding light on campus

The illuminated artwork *Light Matrix* by Leo Villareal is officially dedicated at E52

***Light Matrix* (MIT),  
2016**  
**Leo Villareal**

By Carolyn Fu  
STAFF WRITER

Depending on whom you ask, it is either the new sparkling waterfall, starry sky, or ball of light adorning the entrance to the recently renovated Morris and Sophie Chang Building (better known as E52). *Light Matrix*, as the work of art is officially titled, is part of the List Center’s Percent-For-Art program, which has been commissioning art for campus renovations since 1968.

The artist Leo Villareal is best known for *TheBay Lights*, his stunning rejuvenation of the Bay Bridge in 2013. The spellbinding

array of 25,000 LEDs generates patterns across the San Francisco skyline, and has drawn such praise from the community that the originally temporary installation was made permanent this year.

As part of the official dedication of *Light Matrix*, Villareal spoke on campus about the inspiration behind *The Bay Lights*, and many other pieces in his impressive body of work. Originally trained in sculpture, he acquired his passion for illuminated displays after breathing life into a simple 16 LED matrix at Burning Man. Although his pieces today require a number of LEDs many orders of magnitude higher, they still tap into the same inspiration to build “digital bonfires” — pieces that draw crowds to gather around and stare into their mesmerizing patterns.

Each piece begins with an array of LEDs — whether colored or monochrome; planar or volumetric — which Villareal then programs into sweeping, evolving patterns that take more than a little inspiration from

Conway’s Game of Life. Much of the piece’s programming is actually done on site, in a fascinating process he likens to “tuning a physical instrument.” His aim is for each of his pieces to capture and interact with its surroundings — *TheBay Lights*, for example, drew inspiration from the oscillating waters around it.

As I sat outside E52, I tried to imagine the environmental influences that fed into *Light Matrix*. Interestingly, unlike his other works, which are either imposing centerpieces or oversized murals, *Light Matrix* is uniquely hidden. Enclosed in a vestibule, while sitting in the shadow of Dewey on one side and Tang on the other, there is no real angle from which to appreciate *Light Matrix* except when approaching it head-on, or standing under it. But from five-till to five-after the hour, this is hardly the thoroughfare any student would opt to linger in.

In a quieter moment, I found the chance to sit through the overall arc of the piece —

watching as it transformed from singular points of lights, to pools at either end of its custom stainless steel rods, to a central globe. One might interpret that each point of light is meant to represent an idea on this campus, blossoming with persistent randomness. Together, they form beautifully distinct patterns that emerge depending on your vantage point. Over time, they congregate, polarize, or tear asunder — perhaps in the rise and fall of paradigms, or in the currents of opportunity, termed neural networks today and CRISPR tomorrow.

But in going about our day-to-day lives, these themes become as lost to us as the full sequence of *Light Matrix*. Perhaps as each of us cuts through this place with the rush of ambition — just as we race through the doors of E52, heads down and unto ourselves — we catch only a static instance of this ever-changing swell of human understanding.

THEATER REVIEW

# Hit ‘80s sitcom resurfaces in live stage adaptation

*Cheers Live on Stage* features iconic Boston bar

***Cheers Live on Stage***  
**Running Sept. 9 – 18**  
**Citi Performing Arts Center Shubert Theatre,**  
**265 Tremont Street, Boston**

By Ray Wang  
STAFF WRITER

Set in a Boston bar, the sitcom *Cheers* dominated TV in the ‘80s as the place to go where “everybody knows your name.” It’s back in a stage adaptation from Citi Performing Arts Center, debuting in Boston before embarking on a nationwide tour.

Featuring the same set of main characters as the sitcom’s first season, the stage adaptation revolves around the antics of the bar’s down-to-earth and womanizing owner, Sam Malone (Grayson Powell) and a new face at the bar, Diane Chambers (Jillian Louis). Diane, an artsy and refined student who has just lost her marriage prospects, takes a waitressing job at the bar, setting off the events on stage.

Attending the show was like being at a family reunion — there was immediate camaraderie between actors and audience. Sitting in the audience, I could certainly feel the nostalgia in the air, the enjoyment of the viewers who have grown up watching the show. It’s a seeming tribute to the live audience atmosphere of the original ‘80s sitcom. For example, whenever the heavysset Norm (Paul Vogt), a down-on-his-luck accountant and audience favorite, entered the bar, the audience and cast shouted “Norm!” in endearing welcome. And while I sometimes felt uncomfortable as an outsider at someone else’s reunion, I could understand the sense of belonging in the theater.

The set production is thrilling — meticulously crafted and exquisitely detailed, the wooden Cheers bar is authentic and home-ly. The iconic island bar sits in the middle, ringed by quaint red leather bar stools. Pictures, sports memorabilia, and various other knickknacks cover the walls. I was curious to see how they’d do set changes; in fact, it’s as if time sped up — the lights would dim, actors would come and go, and the ambient light would return a different shade for a different time of day.

*Cheers* is unmistakably Boston. This is reflected in the first act, when a tired Boston tour guide dressed like a Revolutionary War soldier stumbles into the shop with his tour group. Not once, but twice. He tells the poor



COURTESY JOHN HALBACH

**Sarah Sirota (Carla), Jillian Louis (Diane), Barry Pearl (Coach), Buzz Roddy (Cliff)** from *Cheers Live on Stage*.

tourists that this little bar is Harvard Yard, Paul Revere’s house, and just about every historical spot in the area. The jokes serve as a reminder of Boston’s rich culture, and they made me realize how integral *Cheers* is to that culture.

Attending the performance with a totally clean slate, I found many of the show’s themes difficult to relate to, since I had

never seen the television show. The script and humor fell flat at times, at times too jaded for a youthful outsider like myself.

I think I’ll take a trip to the real Cheers bar, which lives on Beacon Street, to immerse myself more fully in the experience. I’m sure I won’t be the only one there trying to glimpse this famous piece of Boston’s past.

# DID YOUR MIT ESSAYS GET YOU IN?

*The Tech* is collecting successful application essays (hint: yours!).

A MISTI SUMMER

# Dinner in a Japanese household

Experiencing Japan outside of my internship

By Samantha Amey-Gonzalez

During my last week participating in MISTI Japan, I visited the National Astronomical Observatory in Mitaka, an open research facility that gives public access to their 65 and 20 cm refractor domes. I was never really interested in space, but Shoko, the kind old woman I visited that summer, had been there five times before and wanted to show me around. Shoko is married to Kazuo, a computer scientist who had worked at MIT around 20 years ago. I was luckily connected to her family after talking to a librarian at an MIT therapy dog event for the first time the semester before.

I only got to see Shoko and Kazuo twice while I was living in Yokohama, Japan, since I spent most of my weekends exploring other parts of the country with other MISTI interns, coworkers, Japanese students, and professors. Still, those were two of the most memorable days of my summer. The moment I walked through the door of their tiny traditional home, Shoko sighed in relief and said she was so glad I could make the time to meet them.

Afraid that my presence would be awkward with a couple that I had no real prior connection to, I barely ate the dinner of rice, fried chicken, potato salad, and homemade yogurt they had set out for me. They were both very excited to see me and meet another MIT student. They had only lived in Massachusetts for two years, but they loved the community and were eager to talk about their experiences there.

Kazuo proudly puffed out his chest when I commented on his Boston t-shirt. Among the pictures of family members and posters of events they had gone to with their daughter plastered on the walls, I noticed a small, framed map of Boston. They had done the same things I did my freshman year — they, too, struggled to sail a boat on the Charles, walked around Boston Common, and visited the MFA, among other things.

I was amazed at how welcoming and kind they were with someone they had just met. The librarian who connected me with them wasn't even a close friend of mine (yet! Now I look forward to meeting with her whenever I have some free time). She had lived near them while they were at MIT, and she said they were really close to her heart.

I got so much out of my three months alone in a foreign country because I made the effort to reach out and meet new people.

I was initially a bit uncomfortable and closed off because I was late, and I didn't see what I, a random undergraduate, could provide for them other than take a picture together as per the librarian's request. I didn't even have to think before answering basic questions that they asked in Japanese — questions about my major, school year, my reasons for coming to Japan, and so on. I had already spent a month answering these

questions almost daily. When they asked about my internship, however, I lit up.

I loved talking about my work at Jasmine, a small animal cardiology clinic in Yokohama. Before I started, I hadn't expected to do much. However, after a month of studying the professional language and the field, I was researching red blood cell levels post-surgery, restraining dogs for X-rays, practicing echocardiograms, performing basic injections, doing blood tests, and writing down notes during surgeries in Japanese. I wouldn't have been able to meet these veterinary surgeons from Japan, Hong Kong, Taiwan, and France so easily if I had stayed in the U.S. this summer.

As I talked about this work during the dinner, I took out my heart sketches and started describing how some of the surgeries worked. Kazuo and Shoko had the same

On my second visit, I could see why Shoko loved taking the scenic 20-minute bike ride to the observatory, peeking through the domes, watching videos on the history of telescopes, and conversing with the employees there. The delicious soba we had for lunch at a nearby temple was also a great incentive to keep coming back. Towards the end of my day with Shoko, after practicing tea ceremony and tai chi for the first time, I told her that I was sad I only had two years left at MIT. My time in Japan reminded me that I had so much more to learn. Her response was this:

"I'm 60 years old, and I'm still learning and teaching myself new things. You're only 20. You have plenty of time!"

My summer in Japan wasn't so amazing just because of my internship, the food, or the fact that it was completely paid for by MIT. I got so much out of my three months alone in a foreign country because I made the effort to reach out and meet new people. If I had only spent time with the other MIT interns, I wouldn't have had amazing home cooked meals like the one I had with Shoko and Kazuo.

The MIT International Science and Technology Initiatives (MISTI) program is MIT's flagship international education program. If you can see yourself joining a team of BMW engineers in Munich, teaching technology entrepreneurship in South Africa, testing solar panels in Israel, or tackling a research problem at the Curie Institute in Paris, then you're ready to join MISTI. Learn more at [misti.mit.edu](http://misti.mit.edu).

MIT APPLICATION ESSAYS THAT WORKED

## I love meeting random people

Editor's note: This is part of a series of MIT application essays submitted by students who were later admitted to the Institute. The following prompts are from the 2013-14 admissions season.

Prompt

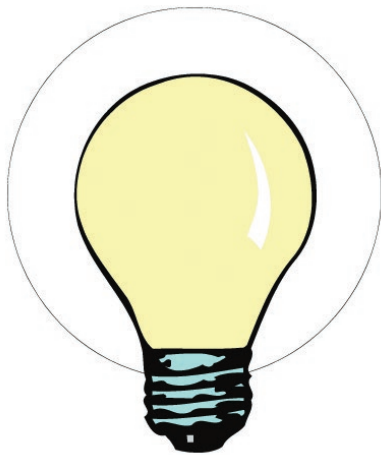
We know you lead a busy life, full of activities, many of which are required of you. Tell us about something you do for the pleasure of it. (100 words or fewer)

Response

"I forgot my pick-up line; you're really cute. Hi" I love meeting random people. I've found an unexpected compliment can

make someone's day, and random conversation can be rejuvenating to anyone. If I feel social anxiety, I find overcoming it is exhilarating. Sometimes, I'll walk around the local Walmart just to say "hi" to everyone. I've realized many people are interesting and social, eliminating my prejudices. I now easily approach people to discuss ideas. At robotics competitions, I talk to everyone and learn from them. Through meeting random others, my appreciation of people and their stories has surged.

—Kevin Palisoc '18



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# Amid rocky election, some question ballot security

*Official: ‘Donald Trump is wrong when he says the election is being rigged,’ notion is ‘ridiculous’*

By Lynn Hulsey  
DAYTON DAILY NEWS

DAYTON, Ohio - Efforts by hackers to infiltrate elections systems in Arizona and Illinois this summer, and the successful hack of the Democratic National Committee emails - allegedly by Russians - have officials and voters on edge as the Nov. 8 election nears.

“It causes panic in the public,” said Tim Mattice, executive director of The Election Center, which represents 1,300 state and local election officials and vendors. “People think, ‘Oh my goodness ... my vote is not going to count.’”

Statements by Donald Trump, the Republican nominee for president, that only a rigged result could cost him the election have brought a strong response from officials like Ohio Secretary of State Jon Husted, who runs elections in the state.

“Donald Trump is wrong when he says the election is being rigged,” said Husted, a fellow Republican. “It’s a ridiculous notion.”

Husted and national elections experts say a number of safeguards protect ballots from outside interference, including a federal law prohibiting connecting any voting machine or vote tabulation machine to the internet, which would appear to thwart hacking.

But officials fear that voter confidence is being shaken in an election year that is highly unusual if not unprecedented.

**“Donald Trump is wrong when he says the election is being rigged. It’s a ridiculous notion.”**

“We want to reassure the public that our election infrastructure is set up in a way that it is votes and votes alone that will determine the outcome of our election,” said Kay Stimson, communications director for the National Association of Secretaries of State.

Ohio officials say multiple levels of security - human, mechanical and technical - are in place to protect the machines from tampering, catch malfunctions and ensure all legitimate votes are counted.

“Your vote will count if you cast it in the United States,” said Jocelyn Bucaro, deputy director of the Butler County Board of Elections.

“There are checks and balances throughout the way,” said Jason Baker, Clark County Board of Elections director.

### No ‘DEFCON 3’

Elections system researcher Merle King said he is confident in the country’s voting systems.

“I have not gone to DEFCON 3 yet,” said King, executive director of the Center for Election Systems at Kennesaw State University in Georgia. “I don’t think we are going to see attacks and hacks that alter the outcome of the election that are undetectable.”

But King and others said there are vulnerabilities in other parts of the the nation’s election systems, specifically voter registration, online ballot delivery and Election Night vote reporting, which does use the internet. Of particular concern is that online voter registration rolls could be vulnerable to hackers, and experts say more needs to be done to make sure that the information in those databases is not compromised or used for fraudulent purposes on Election Day.

“That’s our worst nightmare,” said Matt Roberts, spokesman for Arizona Secretary of State Michele Reagan. “Because if somebody were to manipulate data within the registration database - say somebody just changes everybody’s name to Lucille Ball - that would be a big problem. It would be a catastrophe for elections officials, especially around an election.”

The FBI is investigating hack attempts of elections systems in Arizona and Illinois that occurred in June and led to temporary shutdowns of both states’ online voter registration systems.

In Arizona the hacker never got beyond the Gila County elections office computer, which had a compromised user name and password. In Illinois, interlopers penetrated the state’s online voter registration system but were caught that same day as they attempted to pull data, said Ken Menzel, general counsel for the Illinois Board of Elections. He said no voter information was changed in what was the first incursion in the decade the database has existed.

“They’ve been trying for 10 years,” said Menzel. “It’s been constant all along. I think any entity that has personal or financial information is subject to a similar sort of thing.”

Voter registration databases

contain a trove of public but personal information that could be valuable to hackers interested not just in election mischief but also identity theft. The hacks were a “wake-up call” to state officials, said Stimson, and she anticipates states will increase efforts to protect against incursions.

### Multiple backups

Husted said hack attempts are one reason why states like Ohio should be cautious in heeding calls to allow online voting.

He did not say that official registration records are not online, and even when the state begins allowing people to register online in 2017, the local board offices will maintain the official record.

The electronic poll books used on Election Day are loaded with each county’s voter registration information prior to the election and never connected to the internet, said Steve Harsman, deputy director of the Montgomery County Board of Elections. If an attempted hack occurred to the data, it would likely be discovered and corrected before ePoll books were used on Election Day, Harsman said.

Matt Masterson, a commissioner at the U.S. Election Assistance Commission, said election night reporting of results - where local boards send their results to the state or otherwise share them publicly - is another area of concern. The danger is that hackers could somehow overwhelm the system and keep results from posting or tamper with them, said Masterson, a former staffer in Husted’s office.

However, such an attempt would not change the actual election results, he said, because the

records would still be maintained at local elections offices.

Ohio is one 45 states that have paper backups of election results. Ohio’s results are also electronically backed up in multiple places, including two copies that are taken to off-site locations, officials said.

In 2012 the FBI alerted Mont-

**Multiple levels of security are in place to protect the machines from tampering and ensure all legitimate votes are counted.**

gomery County of an attempt to overload the board’s website with traffic to keep results from being reported, Harsman said. The data processing department monitored traffic and the threat did not materialize.

Ohio has an additional safeguard. To get local results onto the Secretary of State website on election night Husted distributes thumb drives, which are inserted into the vote tabulation machine only once and then used to upload the latest election results to a secure computer controlled by his office. The thumb drives cannot be used again.

Stimson said the practice has become standard throughout the United States.

“Ohio is certainly a state that we recommend other states talk to, not only because it is regarded as a state that runs elections well

but also because they’ve been scrutinized so well for so many years,” she said. “They’re tested.”

### Aging machines

Some elections officials are growing increasingly concerned about aging voting machines causing Election Day malfunctions, such as vote flipping on poorly calibrated touch screens that cause people to cast unintended votes.

“Technology has changed dramatically in the last decade, but America’s voting machines are rapidly aging out,” said a 2015 report by the Brennan Center for Justice at New York University School of Law.

The current crop of voting machines is mostly a mix of electronic touch screen and optical scanning equipment used with printed ballots. Much of the equipment dates to 2006, when federal funding covered much of the cost after punch ballots went out of favor in the wake of the disputed 2000 presidential election and the famous “hanging chads.”

But unlike punch ballots - essentially a paper ballot loaded into a plastic frame - the new voting equipment is electronic and has a shelf-life. Replacing the equipment could cost an estimated \$1 billion nationwide, according to the Brennan Center, and officials say there is no federal money in sight.

In Ohio, elections and state officials are working on a plan that would replace the machines in 2018 or 2020, with the state and counties sharing the replacement costs. Husted estimated the cost statewide to be as high as \$150 million.



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MONDAY, 9/19

- Coffee Chat: United States Navy**  
11:00am-12:00pm, W20 - 407
- Coffee Chat: Delphix**  
11:00am-12:00pm, W20 - West Lounge
- Coffee Chat: Facebook**  
12:00-1:00pm, W20 - 491
- Coffee Chat: OpenEye Scientific Software Inc.**  
12:00-1:00pm, W20 - 20 Chimneys
- Coffee Chat: Analysis Group**  
12:00-1:00pm, W20 - Private Dining Room 2
- Info Session: Aetion**  
6:00-7:00pm, 2-190
- Info Session: Microsoft**  
8:00-9:00pm, 4-370

TUESDAY, 9/20

- Coffee Chat: Tech Square Trading**  
11:00am-12:00pm, W20 - West Lounge
- Coffee Chat: Kensho**  
11:00am-12:00pm, W20 - 20 Chimneys
- Coffee Chat: Zx Ventures**  
11:00am-12:00pm, W20 - Mezzanine
- Coffee Chat: Refdash**  
12:00-1:00pm, W20 - Private Dining Room 2
- Coffee Chat: InterSystems**  
12:00-1:00pm, W20 - Private Dining Room 1
- Info Session: athenahealth Inc.**  
6:00-7:00pm, 2-190
- Info Session: Woobo Inc.**  
8:00-9:00pm, 4-237

WEDNESDAY, 9/21

- Coffee Chat: Palantir Technologies**  
11:00am-12:00pm, W20 - 407
- Coffee Chat: Jetbrains**  
12:00-1:00pm
- Coffee chat: Oracle**  
12:00-1:00pm, 32 - TSMC Lounge
- Coffee Chat: IBM**  
1:00-2:00pm, W20 - 407
- Coffee Chat: Hudson River Trading**  
1:00-2:00pm, W20 - 20 Chimneys
- Coffee Chat: Appian Corporation**  
2:00-3:00pm, W20 - 20 Chimneys
- Info session: Jane Street**  
4:00-5:00pm, W20 - 20 Chimneys
- Coffee Chat: Heap**  
6:00-7:00pm, W20 - 20 Chimneys
- Info Session: Oracle**  
6:00-7:00pm, 2-190
- Info Session: The Boeing Company**  
6:00-7:00pm, 4-237
- Info Session: Yext**  
7:00-8:00pm, 6-120
- Coffee Chat: Exxon Mobil Corporation**  
7:00-8:00pm, W20 - 20 Chimneys
- Info Session: Citadel**  
7:00-8:00pm, 4-270
- Info Session: WorldQuant**  
8:00-9:00pm, Location: 4-237
- Info Session: Stripe**  
8:00-9:00pm, 2-190
- Info Session: Shell Oil Company**  
8:00-9:00pm, 32-141
- Info session: Wealthfront Inc**  
9:00-10:00pm, 6-120
- Info Session: GoDaddy**  
9:00-10:00pm, 4-270

THURSDAY, 9/22

- Coffee Chat: Adobe**  
10:00-11:00am, 2-139
- Coffee Chat: Squarespace**  
10:00-11:00am, 4-251
- Coffee Chat: Driver Group**  
10:00-11:00am, 2-146
- Coffee Chat: Vivint Smart Home**  
10:00-11:00am, TBA
- Coffee Chat: Asana**  
11:00am-12:00pm, 2-146
- Coffee Chat: Blizzard Entertainment**  
11:00am-12:00pm, 4-251
- Coffee Chat: Lyft**  
11:00am-12:00pm, 66-148
- Coffee Chat: Quantlab Financial**  
11:00am-12:00pm, TBA
- Coffee Chat: iboss Cybersecurity**  
12:00-1:00pm, 8-119
- Coffee Chat: Quantcast**  
12:00-1:00pm, 8-205
- Coffee Chat: BAML**  
12:00-1:00pm, 4-146
- Coffee Chat: General Motors**  
12:00-1:00pm, 4-251
- Coffee Chat: Rev**  
1:00-2:00pm, 4-146
- Coffee Chat: The MathWorks**  
1:00-2:00pm, 4-253
- Coffee Chat: Bridgewater**  
1:00-2:00pm, 2-136
- Coffee Chat: Green Hills Software**  
1:00-2:00pm, 2-139
- Coffee Chat: SanDisk**  
2:00-3:00pm, 56-169
- Coffee Chat: HERE**  
2:00-3:00pm, 2-142
- Coffee Chat: Crabel**  
2:00-3:00pm, 2-132

- Coffee Chat: Illumio**  
2:00-3:00pm, 4-146
- Coffee Chat: "Company X"**  
3:00-4:00pm, 2-151
- Coffee Chat: Old Mission Capital LLC**  
3:00-4:00pm, 4-149
- Coffee Chat: Sandia**  
3:00-4:00pm, 56-169
- Coffee Chat: Blend**  
3:00-4:00pm, 2-132
- Info Session: MemSQL**  
4:00-5:00pm, 4-237
- Info Session: NVIDIA**  
4:00-5:00pm, 4-270
- Info Session: Five Rings Capital**  
6:00-7:00pm, 2-190
- Info Session: Newton**  
6:00-7:00pm, 4-163
- Coffee Chat: Intel Corporation**  
6:00-7:00pm, 2-139
- Info Session: Yelp**  
7:00-8:00pm, 4-370
- Info Session: AB Initio**  
7:00-8:00pm, 4-163
- Coffee Chat: Etsy**  
7:00-8:00pm, 2-142
- Info Session: Two Sigma**  
7:00-8:00pm, 4-237
- Coffee Chat: OC&C Strategy Consultants**  
8:00-9:00pm, 2-143
- Info Session: Clear Motion**  
8:00-9:00pm, 2-190
- Info Session: Dropbox**  
8:00-9:00pm, 4-163
- Info Session: Quora**  
9:00-10:00pm, 4-237
- Coffee Chat: Northrop Grumman Corporation**  
9:00-10:00pm, 2-139
- Coffee Chat: Voloridge Investment Management**  
9:00-10:00pm, 2-142

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